



Innovation – OIDD 614

Introduction to Innovation

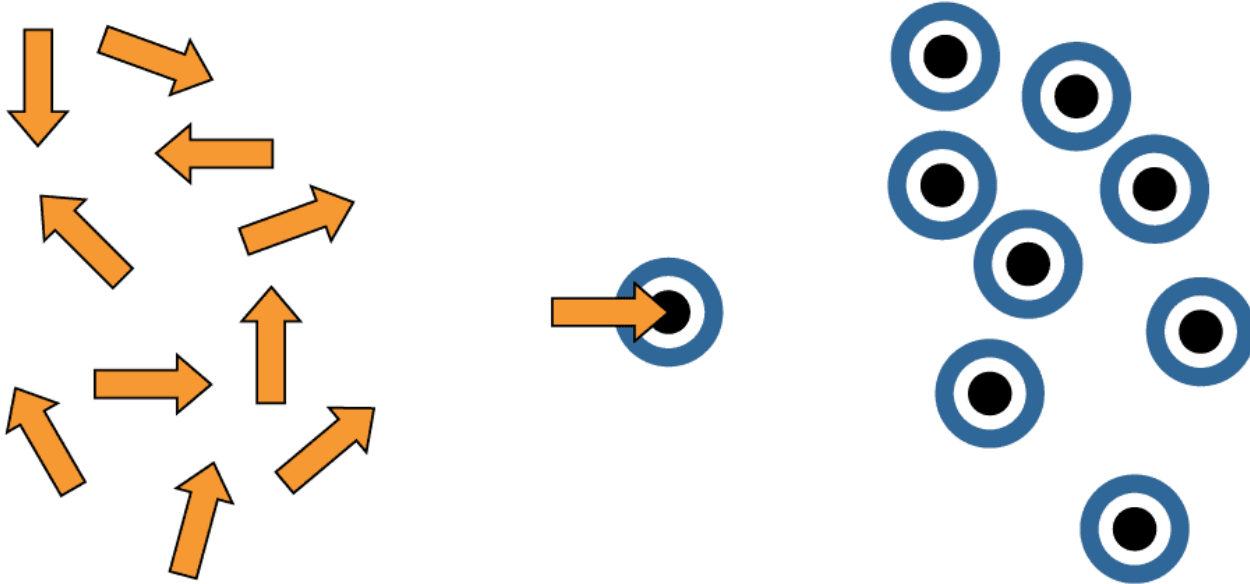
Professor Karl T. Ulrich
Vice Dean of Entrepreneurship & Innovation

@ktulrich | ktulrich.com | ulrich@wharton.upenn.edu



innovation

A new match between a solution and a need.



“Need” is broadly defined



The "Monster Thickburger" —
two 1/3-pound slabs of Angus beef,
four strips of bacon,
three slices of cheese
and mayonnaise on a buttered sesame seed bun.

Sells alone for \$5.49, \$7.09 with fries and a soda.

DO NOT ACCEPT THIS CHECK without confirming presence of Artificial Watermark on back. Other security features are listed on back.

LiveWorld, Inc.
170 Knowles Dr
Ste 211
Los Gatos, CA 95032

REDEPOSIT BANK
1515 MAIN ST, LA 50317

02/26/2005

CHECK DATE

CHECK NUMBER

02/26/2005

1173

PAYROLL CHECK

PAY... FIVE HUNDRED SIXTY SIX DOLLARS 52 CENTS

\$ *****566.52



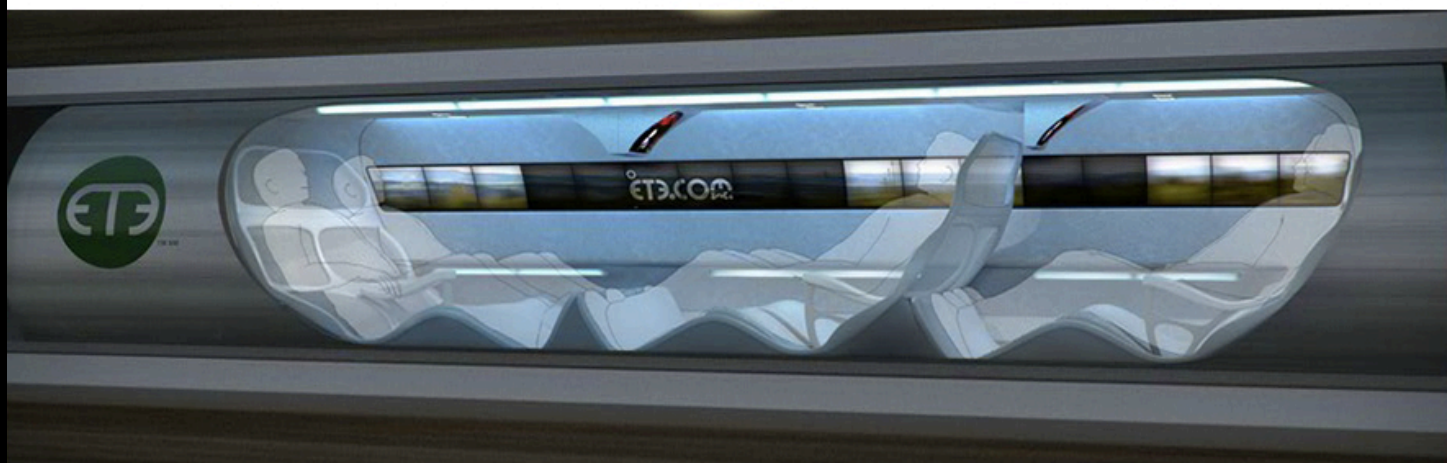
SPL2 31 500 1173

TO
THE
ORDER
OF:
Sandy Purins

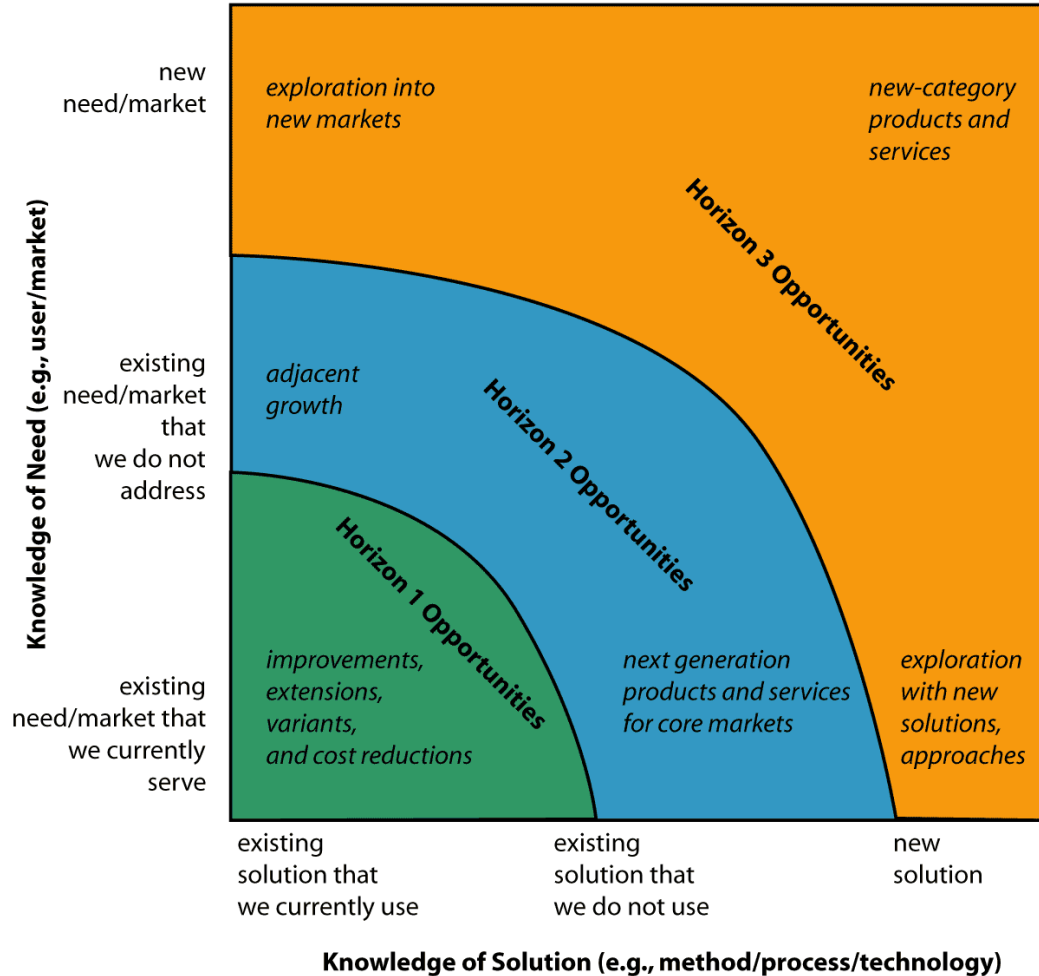
AUTHORIZED SIGNATURE

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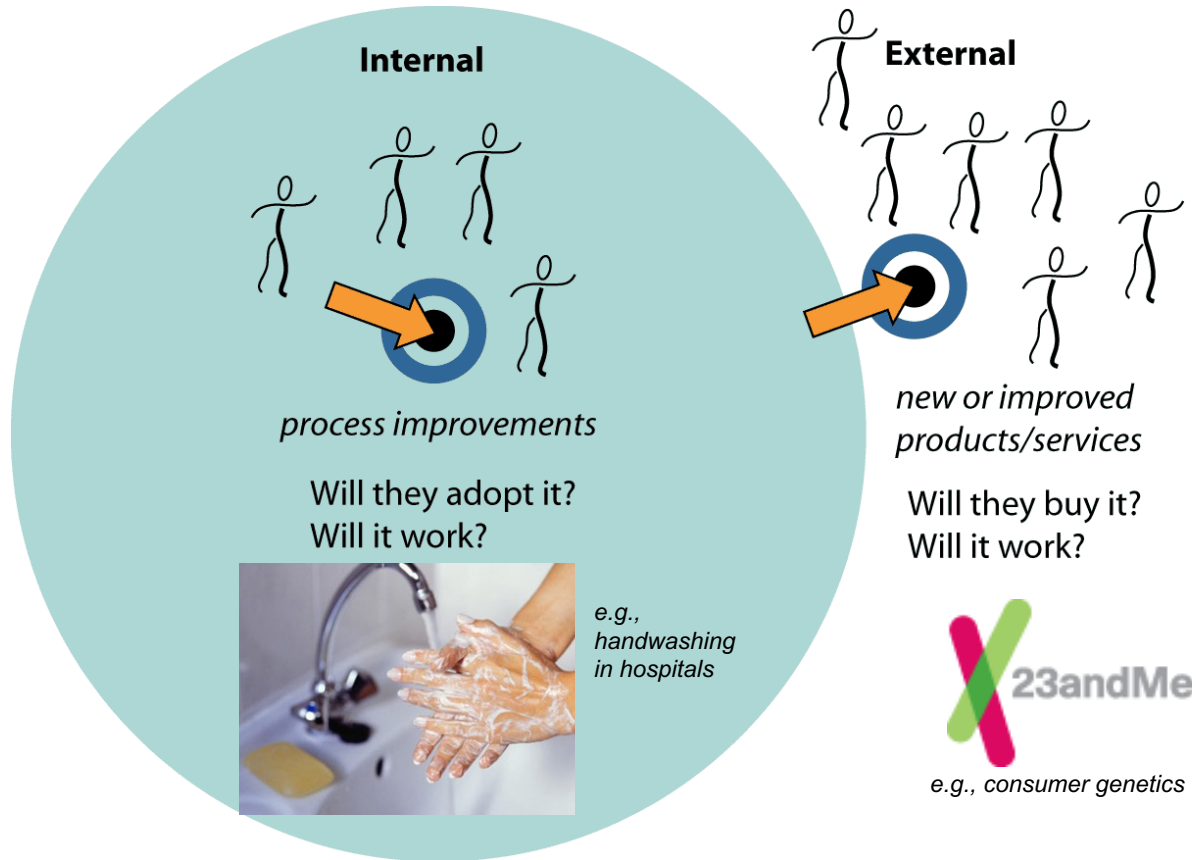
Sandy Purins						Liveworld Inc					
EMPLOYEE 31	DIVISION	SOCIAL SECURITY NO. 555-55-5555	DATE 02/26/2005	CHECK COMMENTS MAX OF 5 LINES CAN CHANGE FOR EACH P/R	PTO 36.34 HOURS						
COMPANY SPL2	BRANCH	HIRE DATE 01/01/2005	PERIOD END 02/26/2005								
CHECK NO. 1173	DEPARTMENT 500	REDIRECT STATUS S2/S2	ETEC DATE 02/26/2005								
EARNINGS						TAXES AND DEDUCTIONS					
DESCRIPTION	RATE	HOURS	CURRENT	YEAR TO DATE	LOCATION AND JOB OVERRIDES	DESCRIPTION	CURRENT	YEAR TO DATE			
REGULAR	97500	8000	78000	78000		FEDERAL W/H	5770	5770			
COMMISSION				50000		QASD1	4836	7936			
401K			-78000	-128000		MEDICARE	1131	1856			
CO 401K MATCH-M			1404	2304		STATE W/H 1A	1811	1811			
GROSS EARNINGS			8000	70200	115200	TOTAL DEDUCTIONS					
				78000	128000	TRUE GROSS					
						NET PAY					
						56652 97827					



Three Innovation Horizons



Internal vs. External Innovation





Value Creation and Capture in Innovation

1. How significant is the need?



2. How well does the solution meet the need?



3. Does the organization delivering the solution possess the required *alpha assets*?



Price – Cost >> 0



No Chicken-or-Egg Problem Here – “Scramble” from Mung Beans

JUST





AVERAGE SHIRT



UNTUCKit SHIRT



What Makes an UNTUCKit Shirt Different?

A. QUALITY ABOVE ALL

We obsess about quality simply so you don't have to.

B. CONTOURED HEMLINE

Adds a level of sophistication to your casual look.

C. PERFECT LENGTH

This is the middle of the zipper; pockets partially exposed.

D. SIGNATURE SAIL

A reminder that the shirt is best worn unfurled.

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Disrupt 1. interrupt (an event, activity, or process) by causing a disturbance or problem.





WELLS FARGO

Home Commitment Products and Services Community Contact

Established 1852. Re-established 2018 with a recommitment to you.

From day one, we always came through for our customers. Today, we're renewing our commitment to you—and working to earn back your trust.

See what's new at Wells Fargo:

- Building a better bank
- Putting service first
- Upgrading our banking features
- Increasing community impact

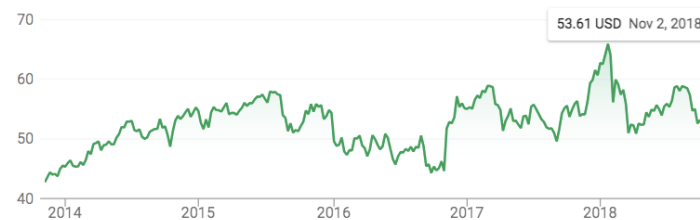
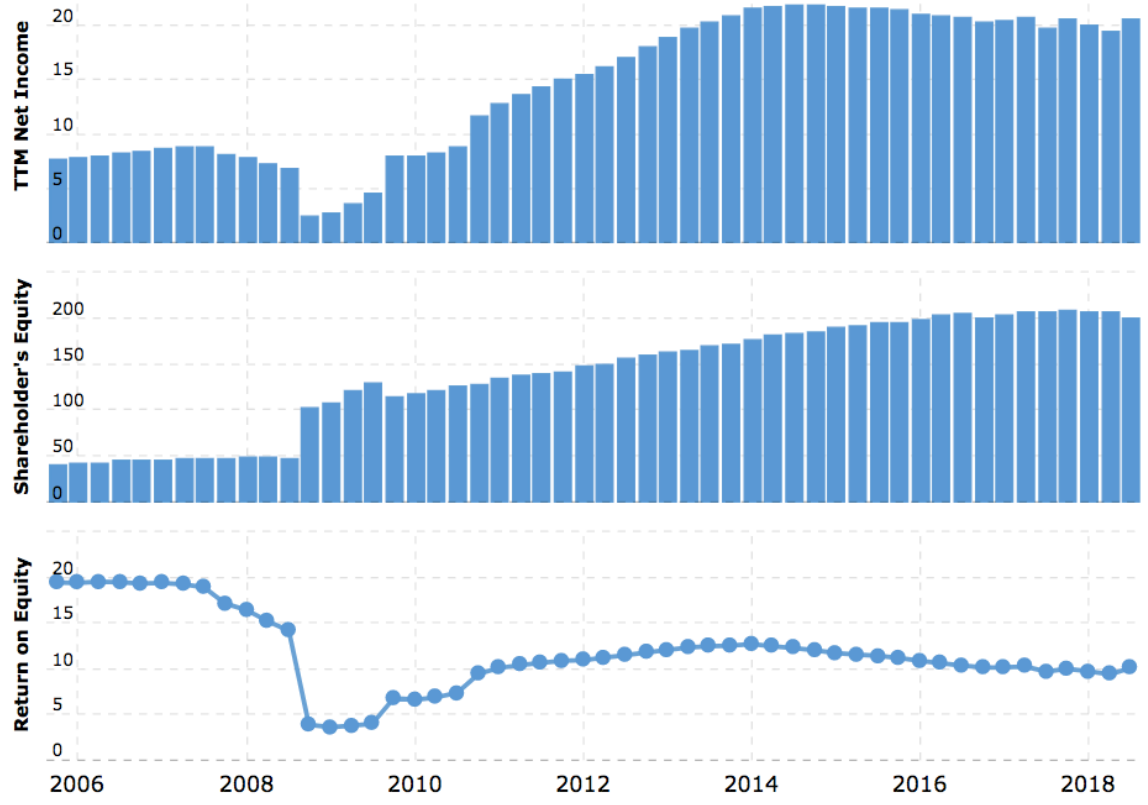
Wells Fargo uncovers up to 1.4 million more fake accounts

by Matt Egan @MattEganCNN

August 31, 2017: 12:34 PM ET

Recommend 44

Facebook Twitter LinkedIn

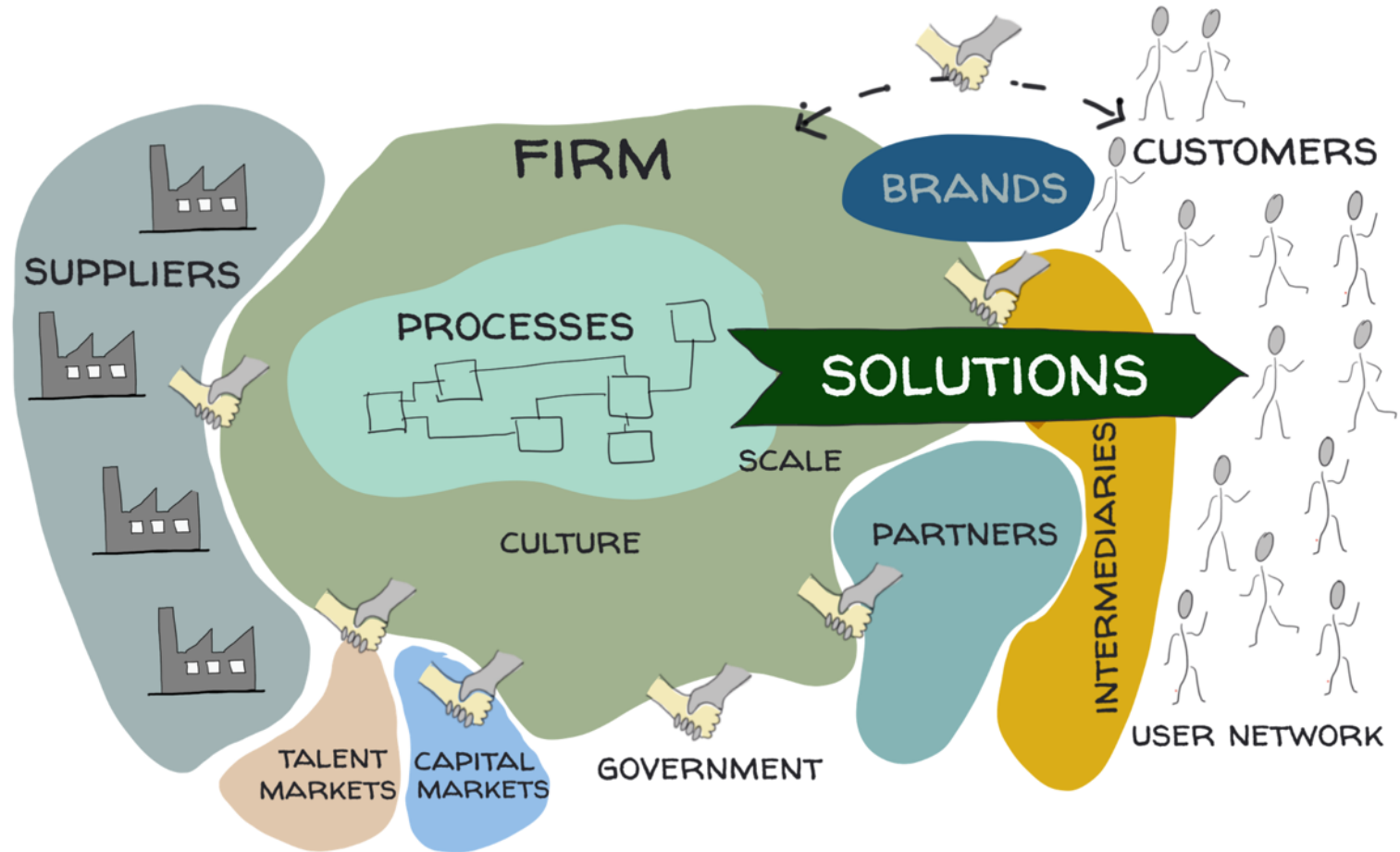


Key Questions

1. How do established firms build and sustain advantage?
2. What role does innovation play in that advantage?
3. When do new entrants have a chance of creating value?

More generally, how do the objectives and challenges of innovation depend on firm context?

Firms are Activity Networks that Deliver Solutions (i.e., “Do a Job”)



Financial View of Sustained Advantage

How does a firm perform over a long time period relative to others in the *same sector*?

ROIC – WACC

(“Economic Value Added” or “Cash Flow ROI”)

~ 6% on *average* for US public companies

If take average over a long time period and compare within a sector, what remains should be largely persistent firm-specific factors.

Note:

Lots of work showing that basically sector and industry don't matter much for ROIC – WACC. See, for instance,

Gabriel Hawawini, Venkat Subramanian and Paul Verdin, “Is Performance Driven by Industry- or Firm-Specific Factors? A New Look at the Evidence,” *Strategic Management Journal*, Vol. 24, No. 1 (Jan., 2003), pp. 1-16.

Example: Restaurant Industry ROIC – WACC (2006-2015)

	Revenue (mm)	Market Cap (mm)	ROIC - WACC (%)
YUM BRANDS INC	13,105	30,681	28.2
DENNYS CORP	491	756	22.8
STARBUCKS CORP	19,163	84,413	19.2
PAPA JOHNS INTERNATIONAL INC	1,637	2,147	16.8
MCDONALD'S CORP	25,413	107,129	14.3
SONIC CORP	606	1,379	14.2
CRACKER BARREL OLD CTRY STOR	2,842	3,642	12.7
PANERA BREAD CO	2,682	4,817	12.1
JACK IN THE BOX INC	1,540	2,757	10.6
BLOOMIN' BRANDS INC	4,378	2,014	9.0
BUFFALO WILD WINGS INC	1,813	3,020	7.5
CARROLS RESTAURANT GROUP INC	859	411	7.2
FIESTA RESTAURANT GROUP INC	687	893	6.7
CHUY'S HOLDINGS INC	287	517	6.0
FAMOUS DAVES OF AMERICA INC	114	48	5.9
TEXAS ROADHOUSE INC	1,807	2,507	4.4
NOODLES & CO	455	254	3.0
RUBY TUESDAY INC	1,127	387	1.5
WENDY'S CO	1,870	2,933	1.2
RED ROBIN GOURMET BURGERS	1,256	841	-0.9
CHEESECAKE FACTORY INC	2,101	2,262	-1.5
BJ'S RESTAURANTS INC	920	1,072	-2.3
POTBELLY CORP	373	308	-3.7

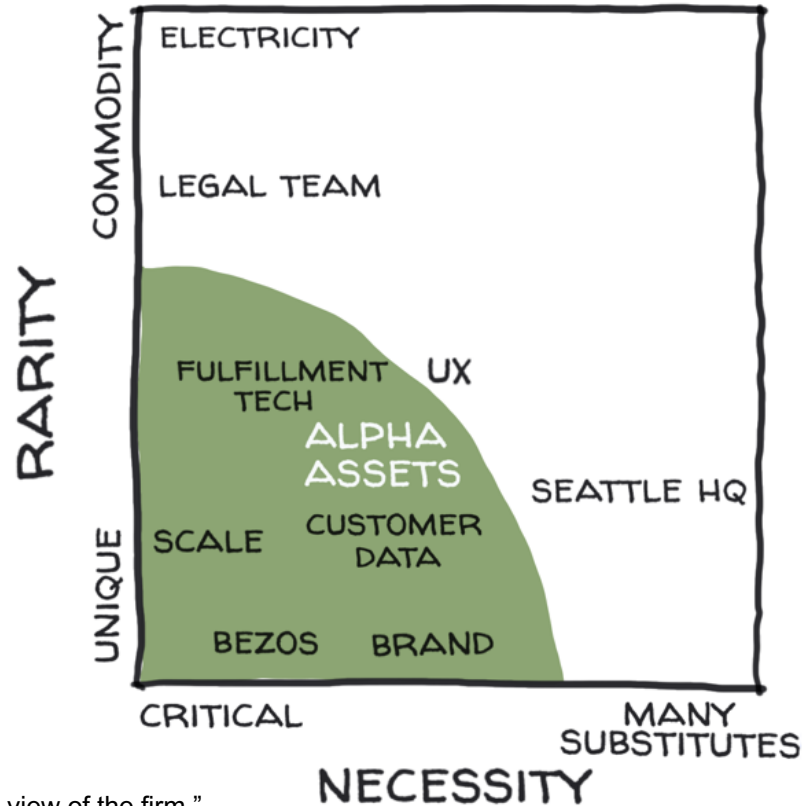


Alpha Assets: the *rare* and *necessary* resources to do the job.

Rare = How difficult would it be for a competitor to acquire the resource?

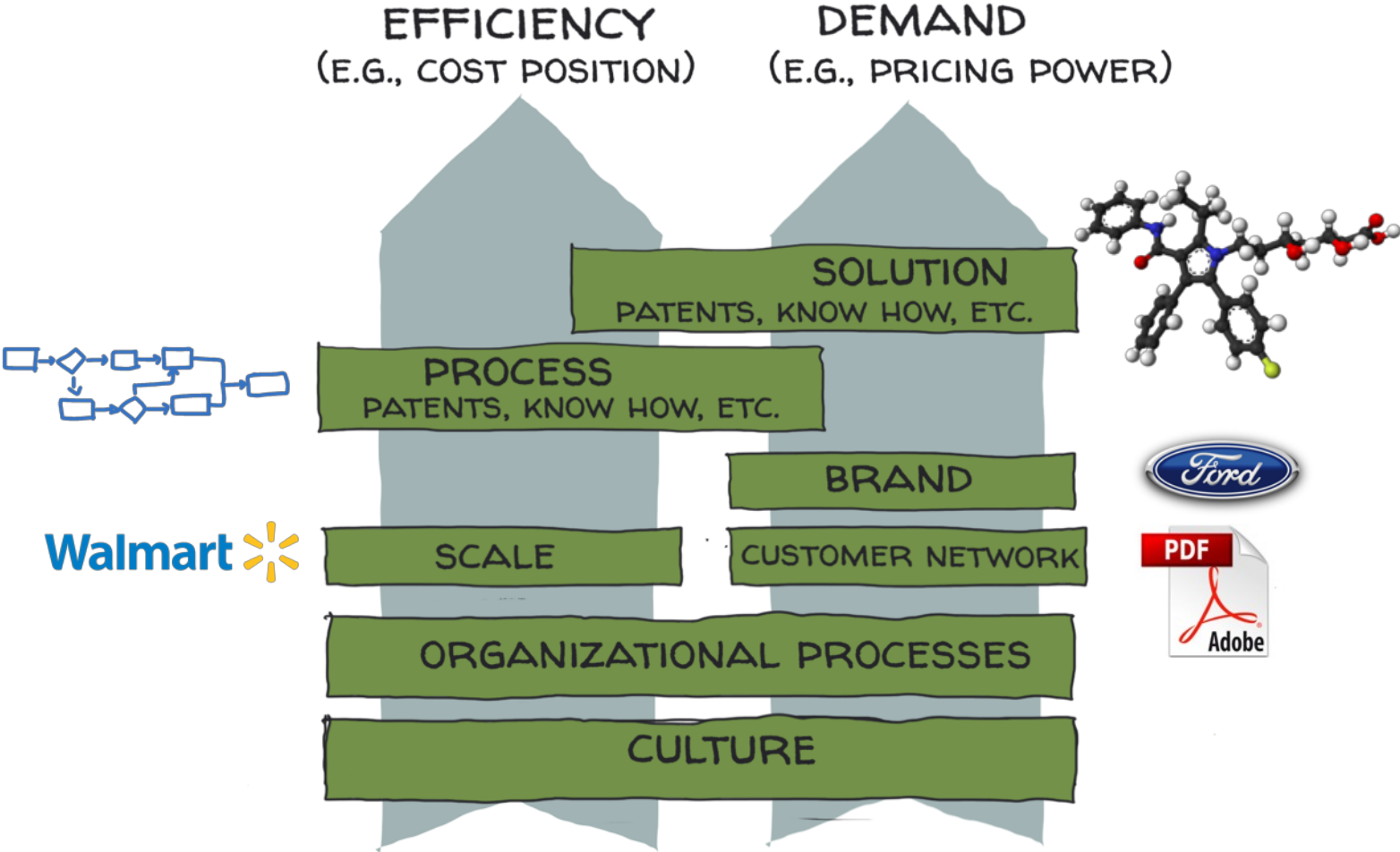
Necessary = To what extent is the resource required to do the job?
(i.e., To what extent is the resource non-substitutable?)

α β

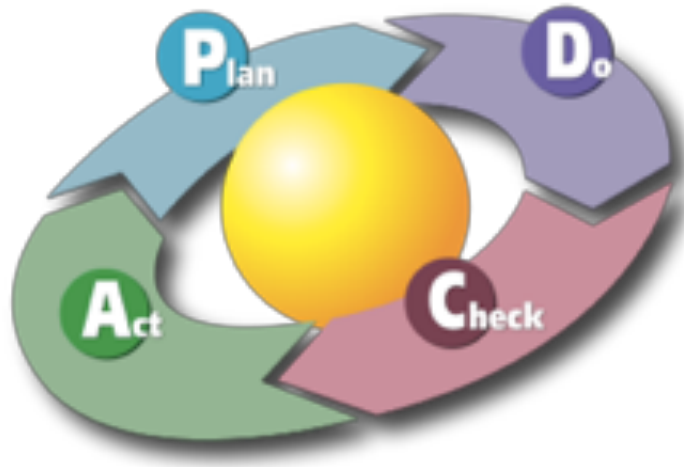


amazon

Alpha Asset Template

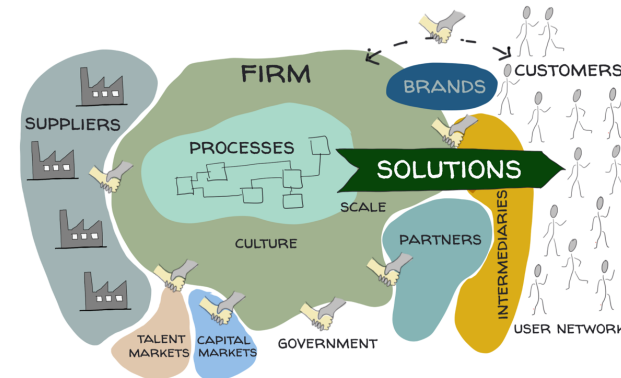


In stable environments, incumbent power comes from ratcheting of improvements in activity networks, largely through incremental change.



Essentially, “Horizon 1” Innovation

- Learning and improvement in products and processes.
- Reducing cost, usually increasing volume, achieving greater scale.
- Reinforcing of relationships.
- Strengthening of brand.
- (Building customer networks.)





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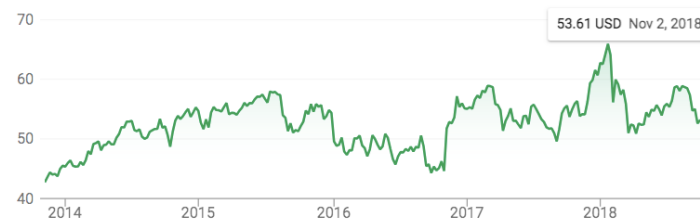
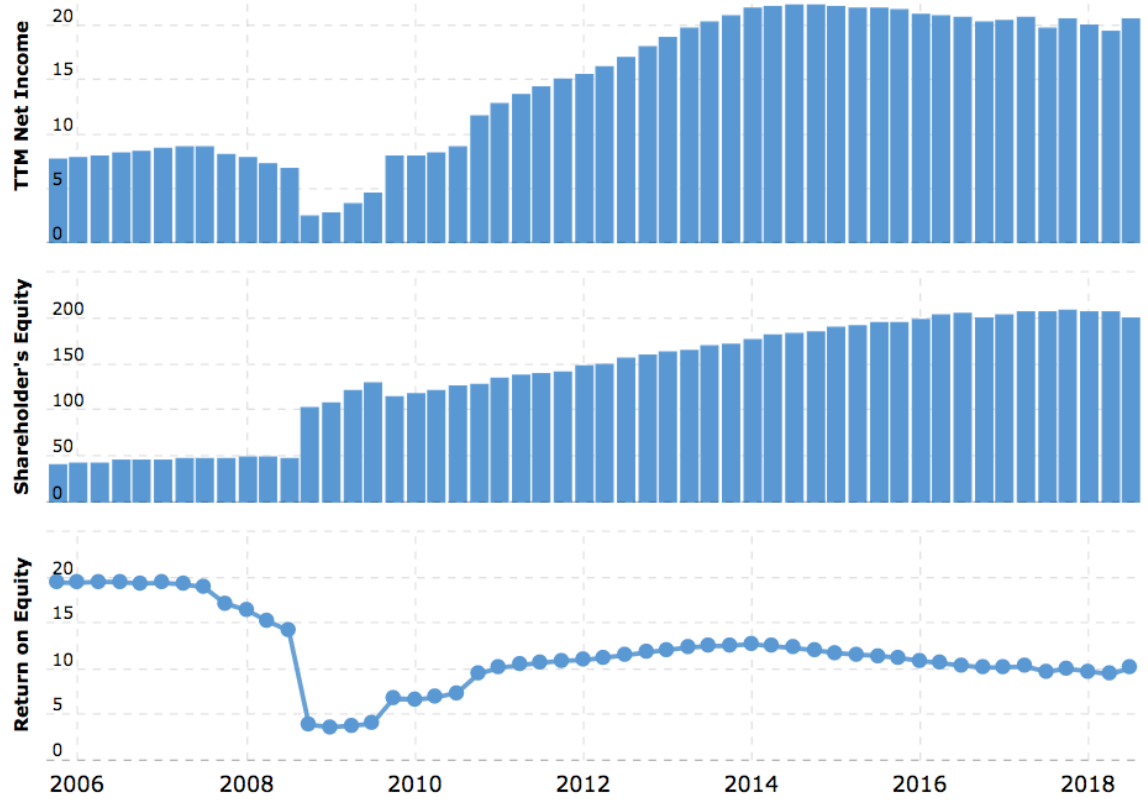
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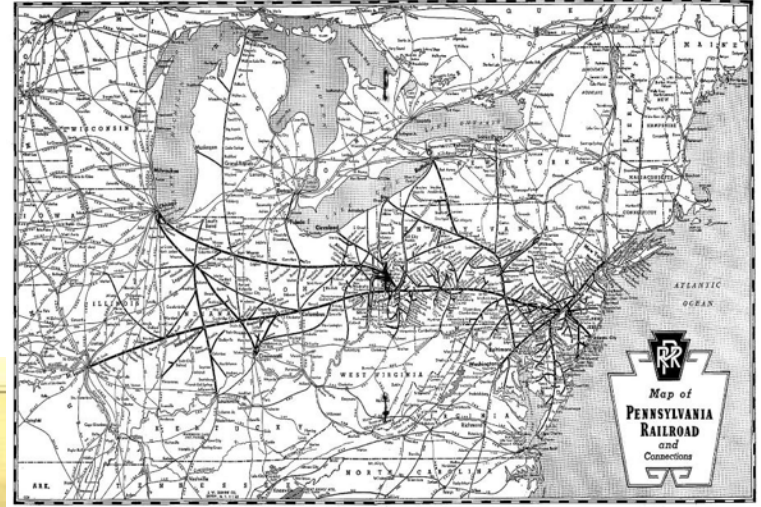
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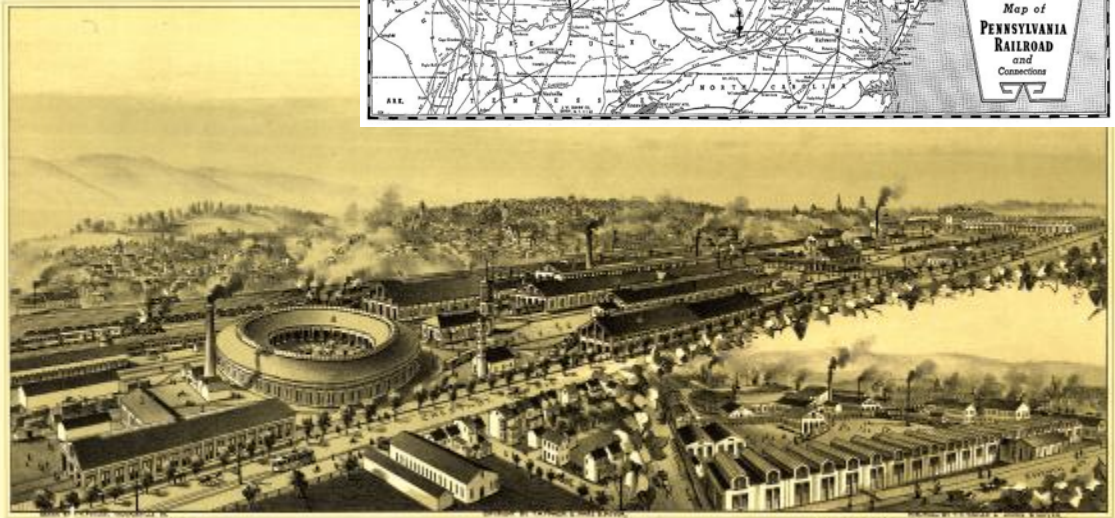


share price

Sustained advantage is often the result of reinforcing “core rigidities”



- c1870, the Pennsylvania Railroad was the largest business in the world.
- Market cap c1900 comprised more than 10% of the value of all public companies (roughly equal to combination of Apple, Microsoft, ExxonMobil, and Berkshire Hathaway).
- Dividends paid for over 100 years in a row.
- Peak employment (1920) of 279,787.



Source: Hooversworld.com

Three Sources of Disequilibrium

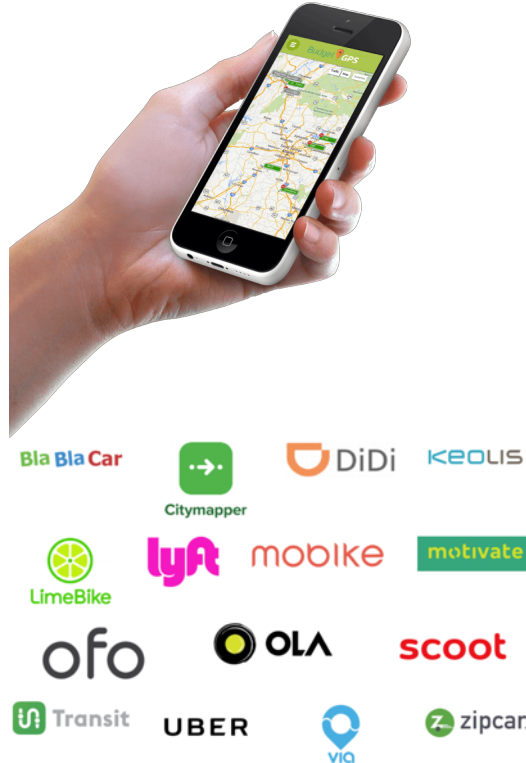
1

Invention of Superior Solutions



2

Enabling Technologies



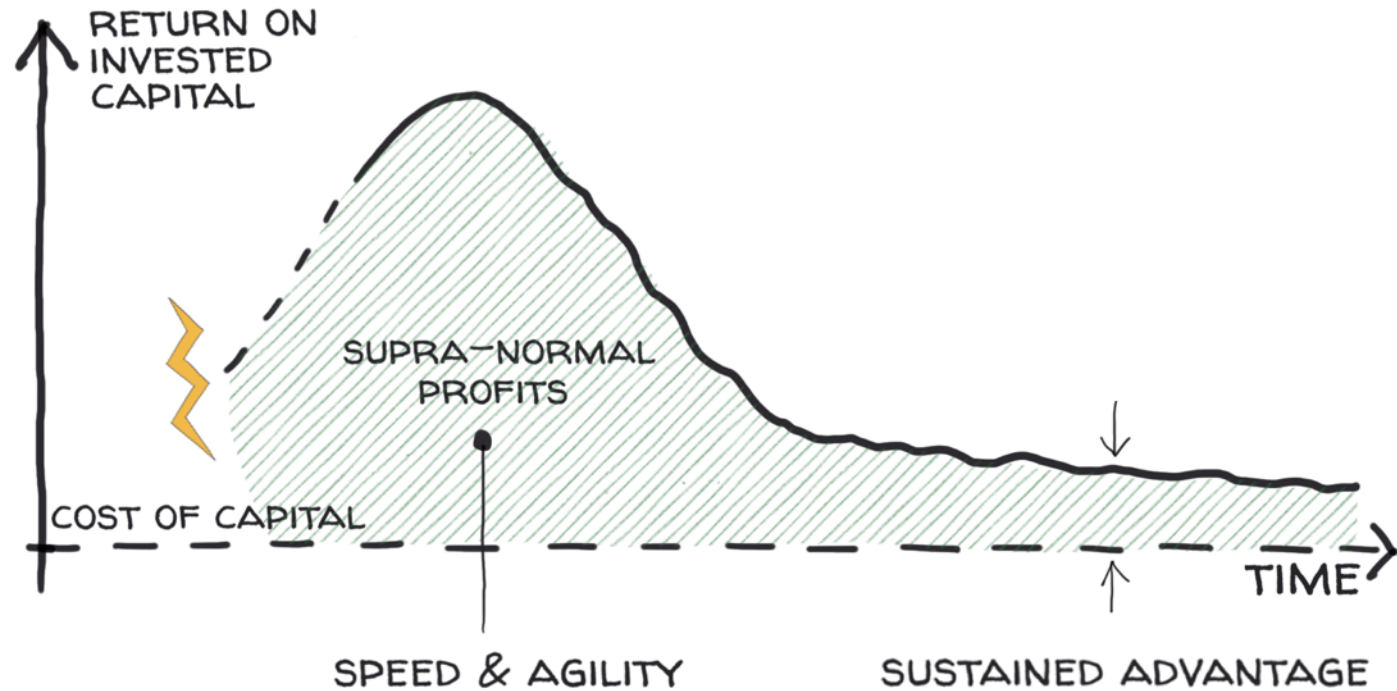
3

Shift in Macro Environment

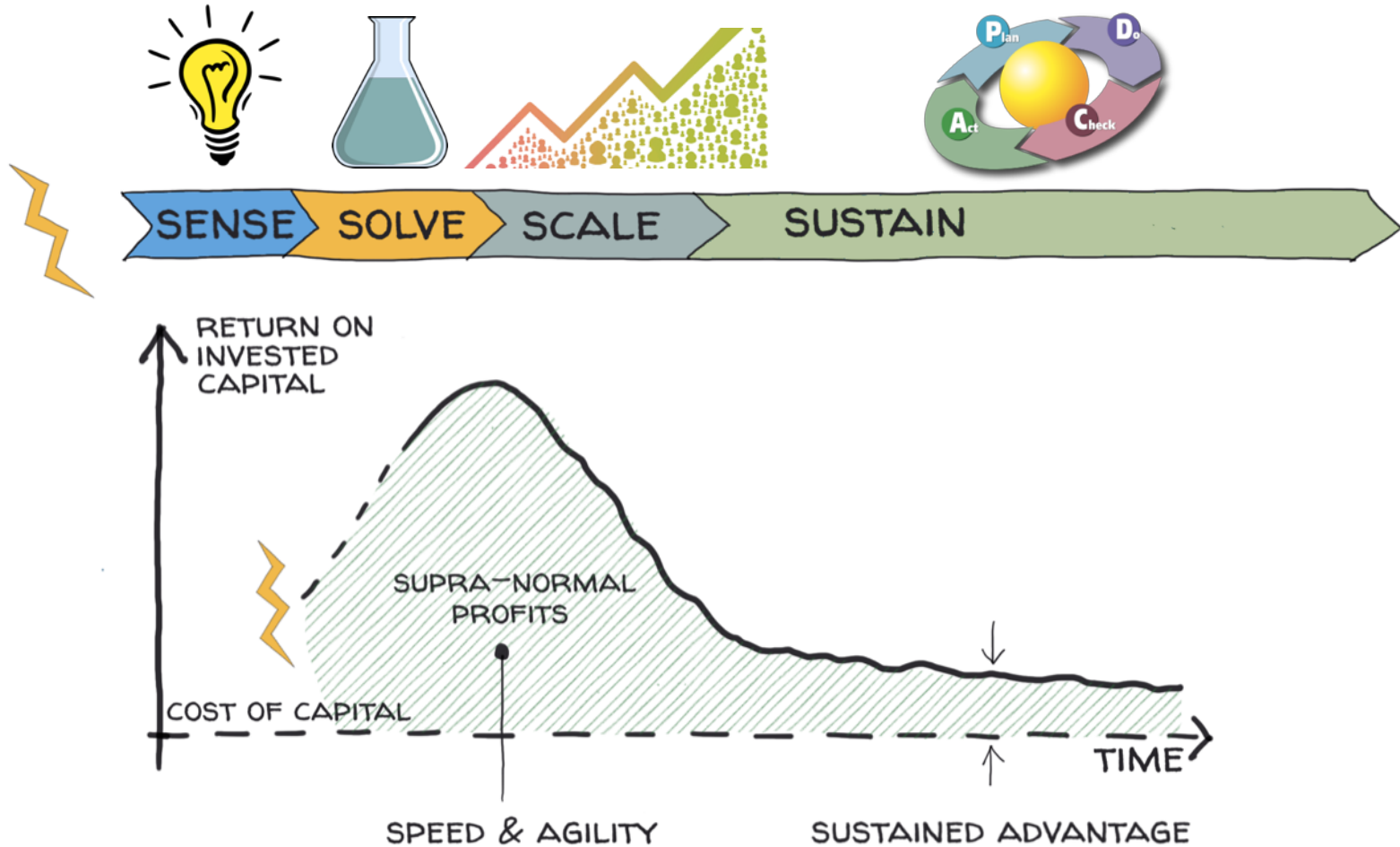


Tastes, trends, demographics, regulation, environment, politics.

Disequilibrium Can Lead to Supra-normal Profits



The Lifecycle of an Innovation in Response to Disequilibrium



Kleiner Perkins invests \$30 million in online retailer UNTUCKit

AVERAGE SHIRT



UNTUCKit SHIRT



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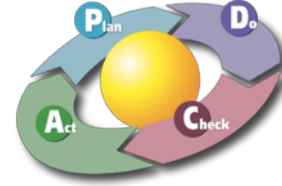
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Transition in Importance of Categories of Alpha Assets



SOLUTION

α

PROCESS

BRAND

CUSTOMER NETWORK

ORGANIZATIONAL PROCESSES

SCALE

CULTURE



Key Questions for Entrepreneurs

1. What am I building that will be an *alpha asset* for doing this job in the future?
2. Which alpha assets will be relevant to scaling and sustaining the business?
3. Will I build those alpha assets myself, or should I form a relationship with an established firm (sale, license, partner)?

UNTUCKit



BUSINESS • STARTUPS • VENTURE

Blueground Raises \$20M for Tech-Rich Rentals

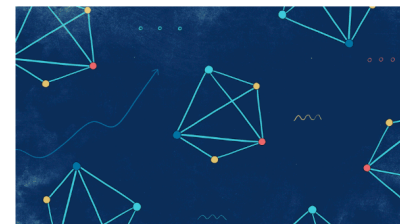
👤 Mary Ann Azevedo, Natasha Mascarenhas March 6, 2019



Research
industry
trends with
live data

⚡ TRY PRO FOR FREE

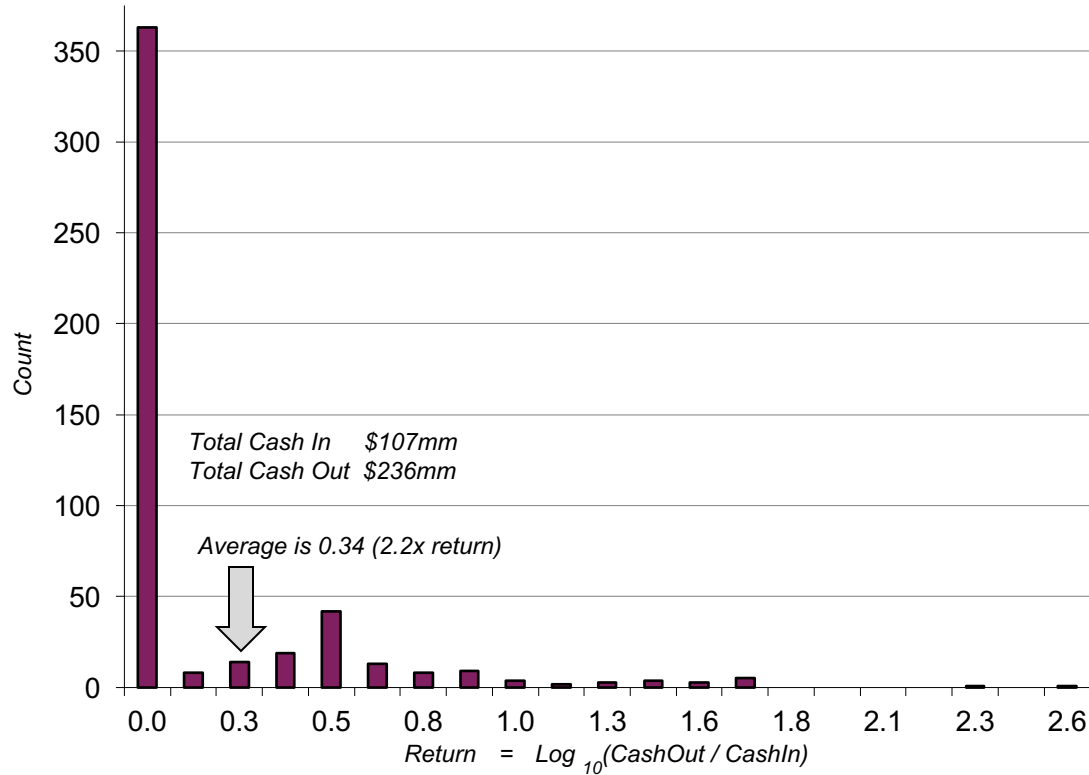
Featured



Redis Labs Raises \$60M Series E To Scale Out Its In-Memory Data Store

Jason D. Rowley

Histogram of Returns for 499 Ventures by Angel Investors



e.g. 1,000,000 cash out on 100,000 cash in has Return of 1.0

Note: Negative or undefined returns set to 0.

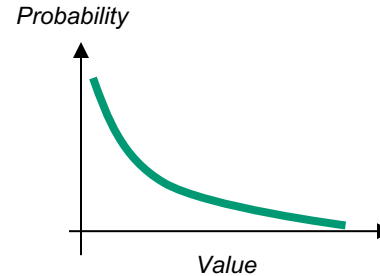
Source: Kauffman Foundation Angel Investor Performance Project.

Opportunity Identification

An opportunity is a *hypothesis* that value can be created and captured with further investment.

An opportunity is always incomplete and its value uncertain.

An opportunity only suggests a direction for further exploration, and both need and solution will likely change with investment.



CabStalker.com – Stop Waiting

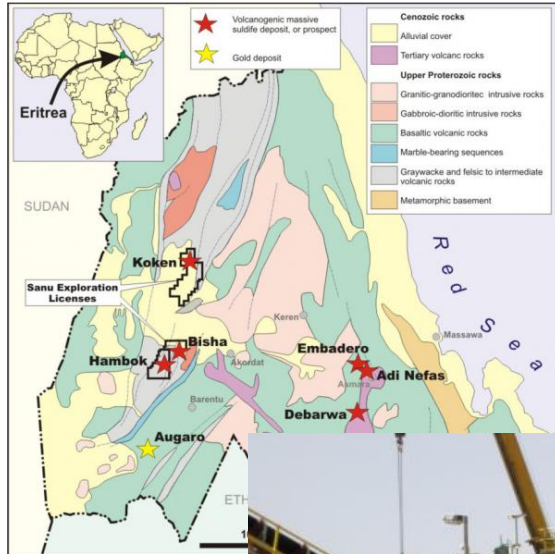


Source: 2009 Wharton workshop on web-based products and services.



Photo:
Wikimedia
(cstockwe)

Idea



$$V = f(I, D, E)$$

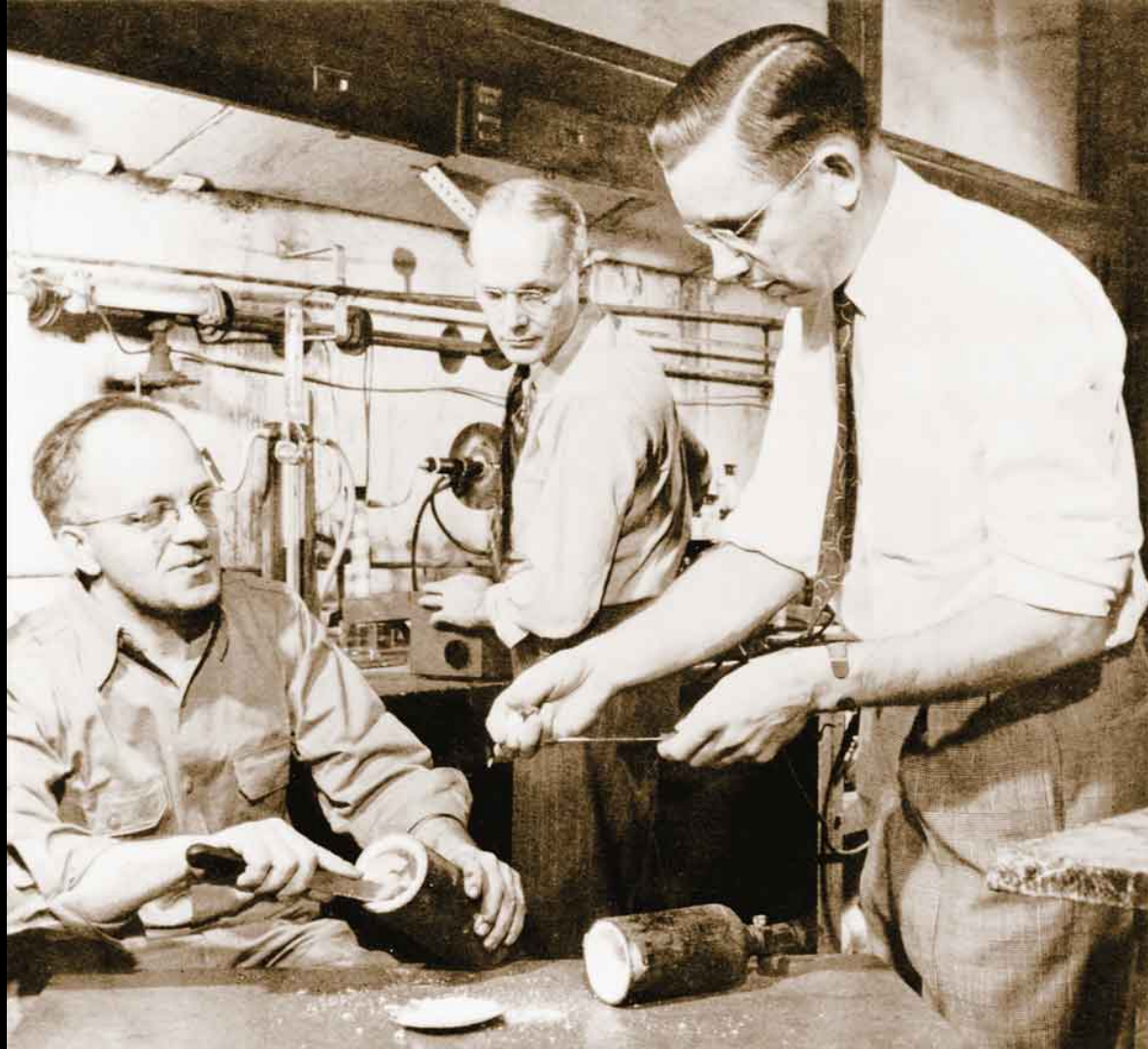
Development

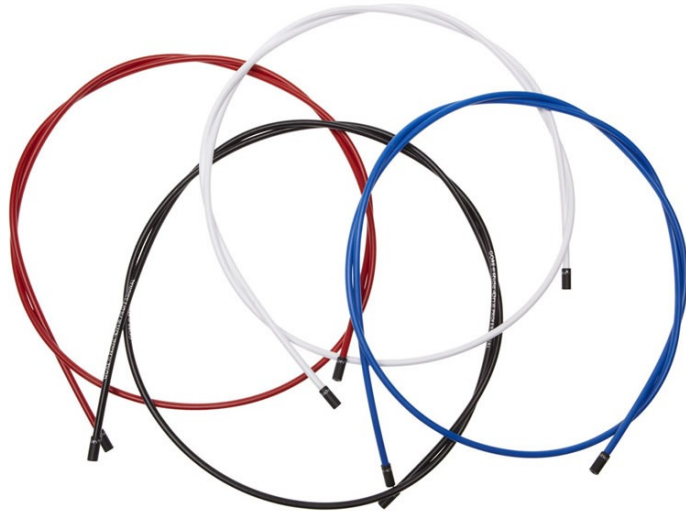


Exogenous Factors



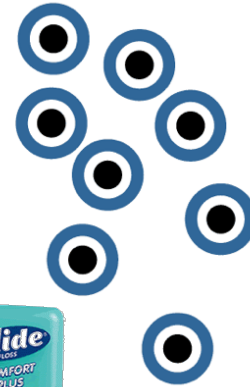
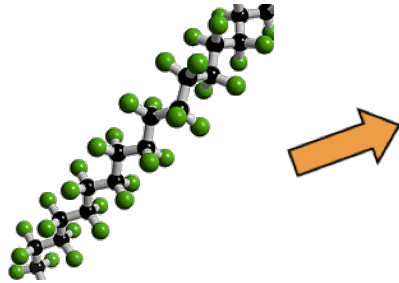






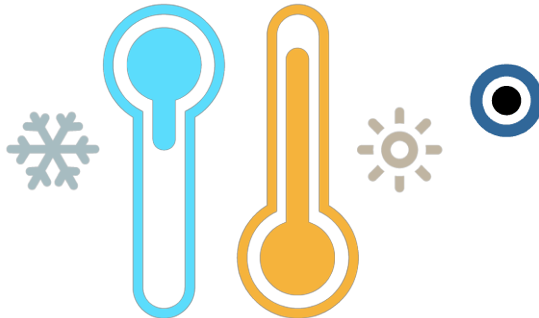
Push

Start with the solution and look for a need it can address.

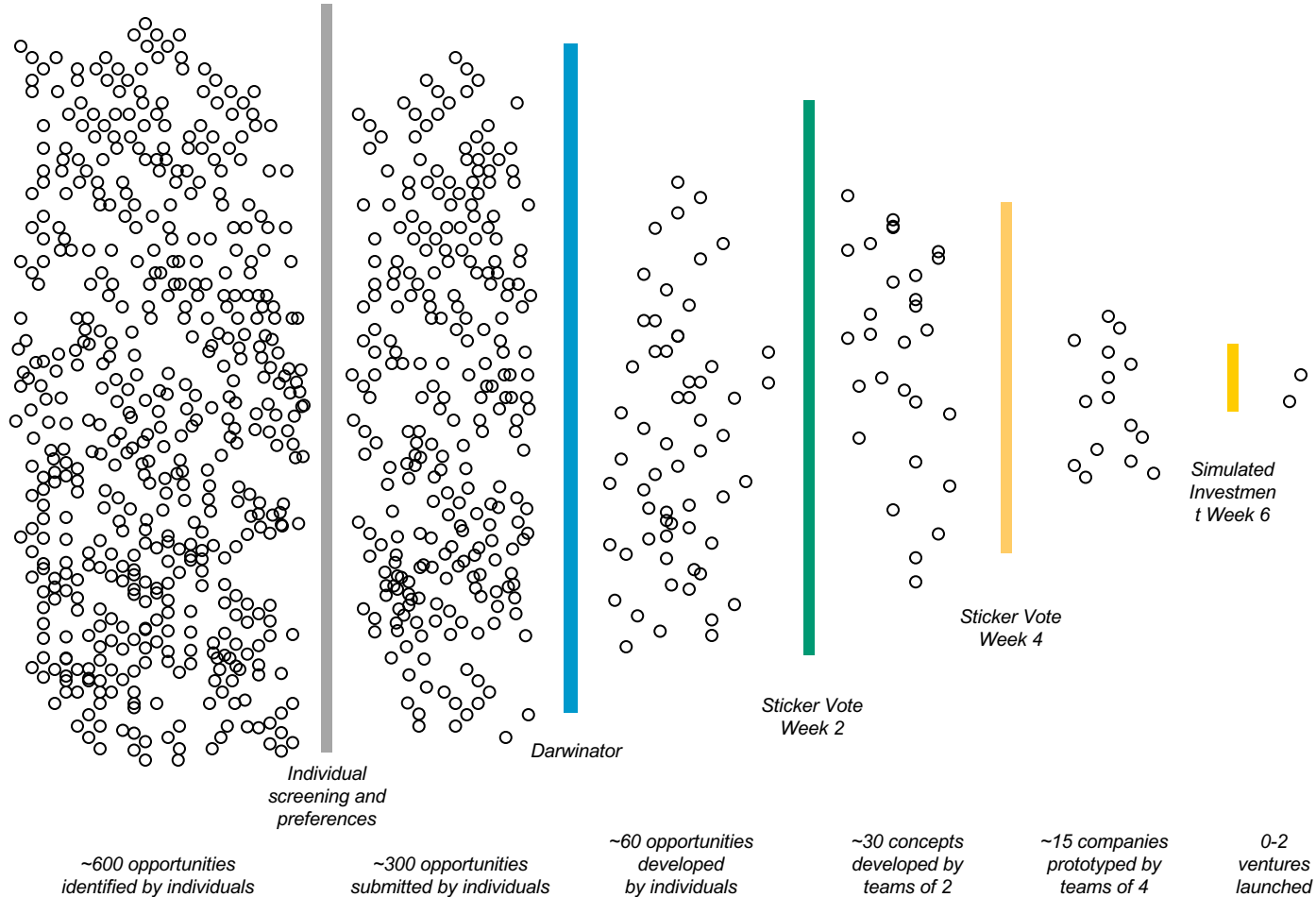


Pull

Start with the need and look for a solution to address it.



Innovation Process – OIDD 614 (normalized to section of 60)



Three
Example
Projects



OF | MERCER

FIND YOUR DIAMOND

We only search conflict free diamonds.

0.15 15

Cut

Good Very-Good Excellent

Color

K J I H G F E D

Clarity

SI2 SI1 VS2 VS1 VVS2 VVS1 IF FL

Fluorescence

Very Strong Strong Medium Faint None

Certification

HRD EGL IGI AGS GIA

+ More options

Reset Search

FIND DIAMONDS

Save Search

SHAPE

CARAT

CUT

COLOR

CLARITY

FLUOR.

CERT.

PRICE

RETAILER

WATSON

ACTIONS

Round	1.64	Excellent	F	VVS2	Faint	GIA	\$20,000	JAMES ALLEN			
Round	1.28	Excellent	E	VVS1	Faint	GIA	\$20,001	blue Nile			
Round	1.69	Very Good	E	VVS2	Faint	GIA	\$20,002	blue Nile			
Round	1.21	Excellent	D	IF	None	GIA	\$20,002	blue Nile			
Round	1.52	Excellent	D	VVS2	None	GIA	\$20,003	YADAV			
Round	1.3	Excellent	D								
Round	1.22	Very Good	E								
Round	1.5	Very Good	F								
Round	1.23	Excellent	D								

Get Watson Alerts

OUR TEAM



Ajay Anand

Ajay leads business. He was the founder of an enterprise SaaS co used by the UN in over 50 countries to deliver aid saving 1m lives. He also was the third employee of 21diamonds.in and a consultant with the Boston Consulting Group. He holds a Wharton MBA, Penn MA, and UMich BBA.

Challenge JOB

IWWMW improve the way jobs for young professionals are created, marketed, identified, and filled?



Challenge HOME

IWWMW improve the way rental housing for young professionals is created, marketed, identified, booked, and transacted?



Opportunity Identification Workshop Timing and Plan

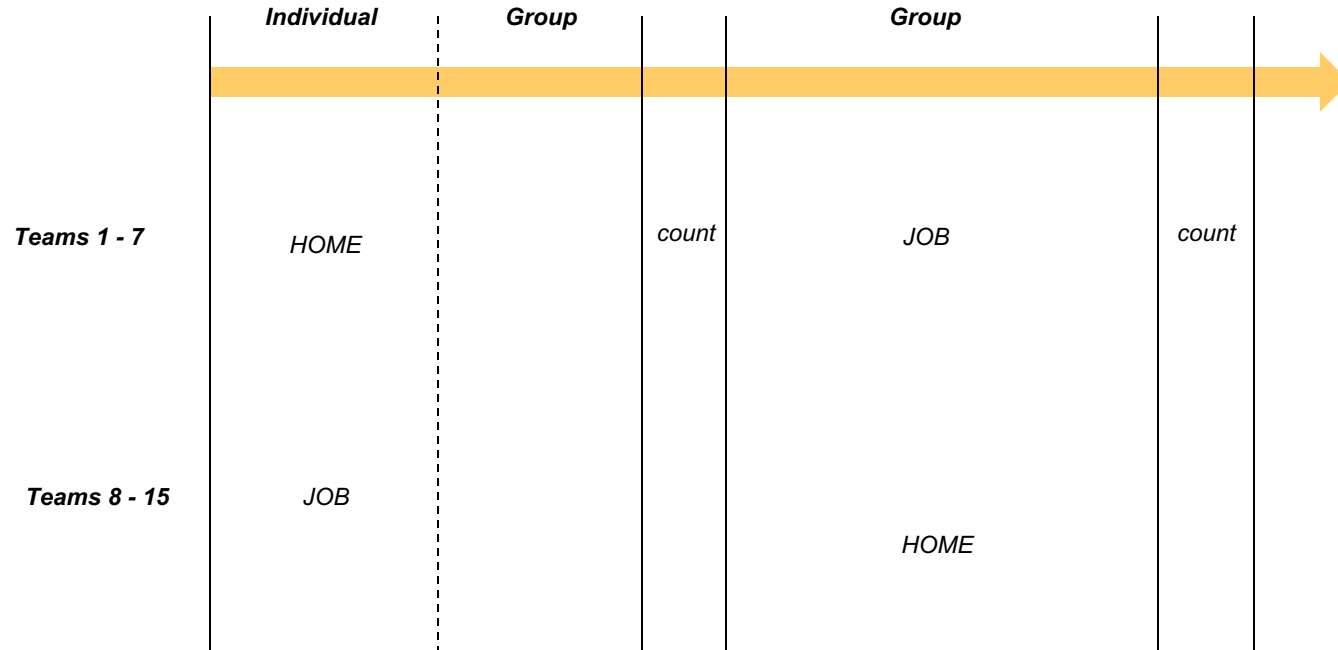




Photo: http://commons.wikimedia.org/wiki/File:Lancaster,_California_desert.jpg



Photo: http://commons.wikimedia.org/wiki/File:M%C3%A9st ASM_clermont.jpg

Groups vs. Individuals in Idea Generation

Group Approach



30 minutes

4 people working together

Hybrid Approach



10 minutes

4 people
working
alone

20 minutes

4 people working
together

- 2.5 x more ideas
- Better quality ideas

Source: Girotra, Terwiesch, and Ulrich. 2010. Idea Generation and the Quality of the Best Idea. *Management Science*. Vol. 56, No. 4, pp. 591–605. (Available via ktulrich.com.)